

**Translation**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>0491PCT</b>	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. <b>PCT/FR2004/002043</b>	International filing date (day/month/year) <b>29.07.2004</b>	Priority date (day/month/year) <b>30.07.2003</b>
International Patent Classification (IPC) or national classification and IPC <b>H05K3/28, H05K3/00</b>		
Applicant <b>NOVATEC</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>7</u> sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising: a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>27</u> sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input checked="" type="checkbox"/> Box No. VI Certain documents cited <input checked="" type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FR2004/002043

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This report is based on translations from the original language into the following language \_\_\_\_\_ which is the language of a translation furnished for the purposes of:
    - ☐ international search (Rule 12.3 and 23.1(b))
    - ☐ publication of the international application (Rule 12.4)
    - ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
  - ☐ the international application as originally filed/furnished
  - ☒ the description:
    - pages \_\_\_\_\_ as originally filed/furnished
    - pages\* 1-20 received by this Authority on 17.10.2005 with telefax
    - pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
  - ☒ the claims:
    - nos. \_\_\_\_\_ as originally filed/furnished
    - nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
    - nos.\* 1-30 received by this Authority on 17.10.2005 with telefax
    - nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
  - ☒ the drawings:
    - sheets 1/8-8/8 as originally filed/furnished
    - sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
    - sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
  - ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
  - ☐ the description, pages \_\_\_\_\_
  - ☐ the claims, nos. \_\_\_\_\_
  - ☐ the drawings, sheets/figs \_\_\_\_\_
  - ☐ the sequence listing (specify): \_\_\_\_\_
  - ☐ any table(s) related to sequence listing (specify): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
  - ☐ the description, pages \_\_\_\_\_
  - ☐ the claims, nos. \_\_\_\_\_
  - ☐ the drawings, sheets/figs \_\_\_\_\_
  - ☐ the sequence listing (specify): \_\_\_\_\_
  - ☐ any table(s) related to sequence listing (specify): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FR2004/002043

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	<u>1-30</u>	YES
	Claims	<u>none</u>	NO
Inventive step (IS)	Claims	<u>1-30</u>	YES
	Claims	<u>none</u>	NO
Industrial applicability (IA)	Claims	<u>1-30</u>	YES
	Claims	<u>none</u>	NO

## 2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1: US 2002/162685 A1 (GOTRO JEFFREY ET AL)  
7 November 2002 (2002-11-07);

D2: US 2003/057264 A1 (FUKASAWA HIDEYUKI ET AL)  
27 March 2003 (2003-03-27).

1. The present invention relates to a method (claims 1 to 10) and a device (claims 11 to 25) for filling the areas which are recessed or between tracks on a printed circuit as well as an apparatus using such a device (claims 26 to 30).
2. Document D1 describes (paragraphs 45 and 49; figure 6) a method for directly filling areas between tracks with a viscous material 25 in such a way as to form raised portions but no air bubbles, wherein:
  - said filling material 25 is caused to move, by means a moving means 12, in the areas 29 to be filled in such a way that any gas in the

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FR2004/002043

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

recessed areas is discharged as air bubbles and replaced with said filling material; and

- the thickness of said material on the surface of substrate 10 is controlled.

The subject matter of claim 1 differs from this known method at least in that:

- (i) the filling material is caused to move hydrodynamically using a rotating roller having an axis perpendicular to the direction of substrate movement relative to the filling device and parallel to said substrate, and
- (ii) a pressure differential is generated between the downstream and the upstream sides of said roller, by means of the combined action of said roller and a scraping element.

It follows that the subject matter of claim 1 appears to be novel (PCT Article 33(2)).

3. The problem that the present invention is intended to solve can be considered to be that of directly filling the areas, which do not extend through to the opposite surface of said substrate and of which the length has an aspect ratio of less than 1, without forming any air bubbles.

A filling method that uses a rotating roller is known from document D2 (paragraphs 31 and 49;

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FR2004/002043

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
-----------	---

figure 1). However, the device described in D2 is actually intended to fill through-holes and coat mounting pads. In D2, the air present in the holes is discharged via the bottom of said through-holes.

None of the other cited documents suggests the specific solution proposed in claim 1.

As a result, the subject matter of claim 1 involves an inventive step (PCT Article 33(3)).

4. The same arguments apply *mutatis mutandis* to the subject matter of the corresponding independent claim 11, which relates to a filling device. It follows that the subject matter of claim 11 also appears to be novel and to involve an inventive step.
5. Independent claim 26, which relates to an apparatus associated with a device as per any one of claims 12 to 25, as well as dependent claims 2 to 10, 12 to 25 and 27 to 30 also fulfil the PCT requirements of novelty and inventive step.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FR2004/002043

## Box No. VI Certain documents cited

## 1. Certain published documents (Rule 70.10)

Application No. Patent No.	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
FR 2 845 858 A	16.04.2004	11.10.2002	

## 2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure	Date of non-written disclosure (day/month/year)	Date of written disclosure referring to non-written disclosure (day/month/year)
--------------------------------	--	---

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FR2004/002043

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

1. The unit of measure "micron" used in the application has not been additionally expressed in terms of the units stipulated in PCT Rule 10.1 (a) (cf. the PCT Guidelines, § 4.24).